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REVIEW

Sleep Paralysis - Cultural Significance and Its Management

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Abstract: Sleep paralysis (SP) is a benign, transient episode of immobility and it lasts a few seconds to a few minutes. It can occur while falling asleep or on awakening. It is a condition of unknown etiology and all the skeletal muscles are almost 'paralyzed'. It leads to an inability to speak or move but individual remains conscious. This review summarizes the existential clinical literature on sleep paralysis most relevant to practitioners; also summarizes the many historical and artistic manifestations of SP in different cultures. It also throws light on the available Arabic literature and others as per the aim of the review. For this review, literature search using engines was carried out, and review papers and original research articles were analyzed. We start with a review which summarizes the collection of symptoms, prevalence rate, risk factors and etiological theories, characteristics and classification of the SP over the past years up to the present time, also the management in the form of psychotherapy and pharmacotherapy as well as the cultural significances in different countries. SP plays an important role in the genesis and maintenance of many supernatural beliefs such as nocturnal alien abductions, demonic and ghost attacks in individuals with intact reality testing.

Keywords: Sleep paralysis, Meditation, Muscle relaxation therapy, Rapid eye movement sleep, Sleep hygiene

Introduction

Sleep paralysis (SP) is a dissociative condition in which person is unable to move his body, up on going to sleep or waking up [1]. SP is associated with fear, panic, and often accompanied by vivid, waking dreams [2], they are always terrifying. Due to these predisposing factors different cultures and societies demonstrate it under a supernatural or metaphysical perspective [3]. SP is misinterpreted in societies for not only delusions of alien abduction, but also ghost seeing and paranormal or supernormal delusion experiences such as incubus and succubus. The episodes of SP are short and infrequent but in some cases the episodes can last longer up to an hour and it can be a recurrent [4]. If someone touches the person or speaks to him the episode subside or sometimes ends on its own or excessive moving can also end an episode. Researchers said that SP is always associated with rapid eye movement sleep (REMS) [5] and the prevalence rate seen high in depressed persons with SP [6]. The term "sleep paralysis"was first discovered by researcher Wilson [7] and the episodes are associated with heavy anxiety, not able to perform voluntary movements such as cry out in shout for help, or in some person, fear of gping to die [8, 9]. SP occurs commonly occurs in female [10] also occurs when the body position is in supine such as sleeping flat on back with face upward [8, 11]. Initially SP tends to occurs in the teenagers then it appear most commonly in twenties and thirties and it continue afterwards.

In Arabic literature *Al-Jathoum* is called kaboos such as evil spirit, incubus, nightmare that goes down upon a person in his sleep, which is a *jinnii* (ghost) that sits on a person's chest if he has been disobeying his duties and not performing prayers.

Before the 15th century, a "nightmare" was similar to spiritual attack, they were believing that it is due to attack by ghost. The word nightmare comes from Scandinavian origins: mare comes from mara, a spirit that, and suffocate sleeping person

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[12]. Henry Fuseli, in his most famous painting, "The Nightmare" (1781), a small creature in stories usually with pointed ears and magical power used to sits upon the chest of sleeper and it is specified as a "classical" pictorial representation of SP, of which painter himself have been victim [13].

Another well-known scholar *Ibn Sina* (Avicenna) reported in his medical book al-Qanoon [14] (The canon of medicine) in chapter on al-kaboos: It has given a name al-khaaniq (the strangler), and in Arabic it is also called al-jathoum and al-naydalaan. Al-kaboos is a disease or condition in which a person feels and imagines something heavy pressing and squeezing upon him due to which feeling breathless when he was sleeping, due to which he is unable to speak or move his body, and he is feeling breathless due to the obstruction of his airway. When someone touches the person, SP subsides and he or she wakes up immediately. This is the precursor to one of three things: epilepsy, apoplexy or mania. That is associated due to physical causes and other non-physical etiology is not seen.

Prevalence rate

Lifetime prevalence rates of SP were found higher in students around 28.3 percent, in psychiatric patients it is 31.9 percent and in general population it is 7.6 percent. SP is always more in female individuals than in males [15]. Occurrence rates is more in non-Whites than in Whites. It is a benign condition. Researcher reported that between 25-30 percent of people have experienced a mild form of SP at least once in life and around 20-30 percent of people have experienced it on several occasions.

Symptoms of SP

There are common secondary symptoms of this conditions, these are as follows,

a. Sleeper feeling of being choked or breathless.
b. Sleeper also feeling of some evil spirit attacked on him or sat upon him, or get down on person during sleep particularly in the chest area.
c. Hearing voices, such as sounds of foot steps and sometime hearing voices knocking or banging on the walls.
d. Sleeper also seeing a dark shadows surrounding or standing near to his bed.
e. Feeling fearful, descending or encompassing evil spirit or dread.
f. Feeling trembling of the body or hearing of sounds such as ringing in the ears and rumbling sensations.
g. Also feeling of intense, breathlessness by evil spirit.
h. A feeling of being in a dream-like condition and also feeling being awake.
i. A feeling of pressure on chest, throat and abdomen.
j. Difficulties in breathing.
k. A pounding heart rate.

Types of SP

SP is associated with hypnagogic experiences that occur at the onset of sleep and hypnopompic experiences that occur when waking up [2]. These mentioned experiences or surreal hallucinations is associated with into three types [16]: "Intruder"; "Unusual Bodily Experiences" and "Incubus."

a. The Intruder: In this condition sleeper is feeling of fear as well an unpleasant presence. It is associated with auditory and visual hallucinations such as sense of a threatening presence in the room some time sound of footsteps, a sound of knocking the door and seeing shadow of person.
b. The Unusual Bodily Experiences: In this condition sleeper feeling sense of spinning, floating on water, falling and flying, hovering over one's body or another type of out-of-body experience. In such situations sleeper see his own body from an external perspective, and describe as if they have left their physical body [17, 18].
c. The Incubus: In this condition sleeper is feelings of chest compression due to which feeling shortness of breath also feeling the sense of being strangled, smothered, or sexually attacked by a malevolent being and sleeper also believes they are about to die [16].

Sleep paralysis also classified into two type's, Common sleep paralysis (typical) and Hallucinatory sleep paralysis (hypnagogic).

a. Common Sleep paralysis (CSP): According to researcher Gallup poll in a 1992 said that every adult facing an episode of CSP in couple of years. Affected person is always conscious and feel that his body are frozen for short period. This temporary paralysis affect with gross motor functions and muscle groups of the body. It lasts between 15 sec to a minute even though sleeper report that it lasts longer.
b. Hallucinatory Sleep paralysis (HSP): It is more terrifying sister to the CSP and it is also known as the hypnagogic sleep paralysis and the Hag phenomena. There are three major differences between HSP and CSP. CSP is common and universal and HSP is rare and it is geographically episodic. CSP lasts short duration where HSP can last more as seven or eight minutes. There are major difference of course; CSP

sleeper is unsettling but the HSP is accompanied by a nightmarish hearing voices.

Risk factors for SP

SP can occur in context with several medical and neurological conditions these are Hypertension [19], idiopathic hypersomnia [20, 21], Insufficient sleep syndrome [22], Narcolepsy [22], Obstructive sleep apnea [23], Alcohol use [24], Wilson's disease [25], but the majority of those who experiences SP report it in its isolated form, without known medical or neurological association.

Sleep factors

In this category sleep disruption or presence of poor sleep is associated with SP [24]. SP is commonly occur in shift workers because of disturbances of biological clock [26], and the SP is also most commonly occur when individuals sleep in supine position.

Personality factors

Certain personality traits may also associated with risk factors to develop SP. Some factors such as higher levels of dissociation [27], and imaginativeness [28], and the supernatural or paranormal beliefs [29] have been linked to SP.

Etiology

Etiology of SP is unknown, even though genetics and sleep deprivation are a major cause of SP. It is also associated with disorders such as migraines, bipolar disorders, anxiety disorders, stress, the use medications, trauma, and sleep related leg cramps. Basic etiology of SP is REM atonia.1) according to theory during REM sleep, brain is always awake and always active, and during this stage dreams are occurs due to which voluntary muscles of body are under control or paralyzed and person not able to move his body. 2) Among neurotransmitters such as glycine and GABA, when these two are suppressed SP occur. 3) When astral body is dissociates or detached itself from physical body SP occurs, it is called out of body experiences. 4) Other causes are family history of sleep paralysis.

Cultural significance of SP

In this phenomenon and supernatural character different cultures have been given different names. SP shows strong evidence of formation of neurobiological phenomenon. Different culture is giving different names and it is properly explained and given a particular form.

Mexican is called"se me subió el muerto," it meaning is that as "a dead body climbed on top of me". The Arctic regions of Inuit people , they are Eskimos and residing in Canada they called as "uqumangirniq", and they are associated to the spiritual world. These Eskimos described SP is a motor functions such as not able to talk, move, and scream loudly, and they are feeling a shapeless, or faceless, presence due to which become fearful. These Inuit people believe that the angakkuit (shamans) are the main cause for the uqumangirniq [30].

SP in the Japanese tradition it is called as the "kanashibari" [31], and described as "feeling a state of being totally bound, as they chained with metal."The summoner called SP "kanashibari". These summoner showing a desire for vengeance to suffocate his enemies, it is a more commonly seen in the far-east countries, this was is written in the Japanese comic book "Manga." The phenomenology of SP in both Inuit and Japanese is very similar to the "Pisadeira,"they attribute to SP a human origin - from spells of shamans or summoners, but this phenomenon is not happen in the Brazilian stories.

In Thailand culture SP is called as the "phi am," [32] they explained that, the ghost visit the subjects when they are half-asleep and sits on person's chest due to which the person is not able to move his body. Egyptian culture SP is caused by the "Jinn (ghost)", and they believe that this evil spirit who is having desire to cause harm the person [9]. In Ethiopian culture they believe that an evil spirit that haunts the sleep is "dukak" [33]. In the Brazilian culture it is called Pisadeira. The affected person from an ethnic group of the mountain regions of Vietnam and Laos called a "pressing spirit" they believe that ghost sits on the chest of the sleepers then the ghost tries to press the neck of the sleepers to asphyxiate them [34].

Similarly in Chinese culture, affected person believe that a type of "ghost oppression"causes SP [35]. In Southwest NigerianYoruba people also believe that the evil spirit is an "OgunOru" and they believe that during dreaming a female ghost who seize and take control of body and mind [36]. A province of Canada, in New found land SP is caused by an evil spirit is known "the Old Hag" is a witch who sits on the sleeper's chest [37]. Saudi Arabian culture it's called Al-Jathoum [38]. In the United States of America, a new version of a story of evil spirit that attack on sleeper during sleep is called "alien abductions" [39]. Mack defines these

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cases alien abduction is as a story that is told or written such as conscious or aided by hypnosis. This narratives recorded in the absence of altered mental states. It is caused by psychotropic substances [40].

Diagnosis

SP is always diagnosed through clinical history taking of affected person and it is important to exclude other capable sleep disorders that could cause for SP. Psychiatrist or other physicians doesn't conduct any tests to treat such type of patient; but most of the patients they should do an overnight sleep study if they faced problem is disturbing sleep particularly in recurrent isolated sleep paralysis. This study is called a polysomnogram: it records brain waves, heartbeat, and breathing as a person sleep it also records how arms and legs move. Another study is called electromyogram (EMG): it records the level of electrical activity in the muscles and level of these electrical activity will be very low during an episode of sleep paralysis.

Treatment of SP

SP is a once-in-blue-moon event, therefore at initial stage nothing to do about it. Most probably a person or individual won't even realize having a sleep paralysis so they don't need treatment but recurrent episodes of sleep paralysis, need treatment. There is actually no treatment for SP but its underlying condition such as a psychological problem, anxiety disorder, or a sleep disorder should be treated. There are several treatment options are available such as promising psychopharmacological and psychotherapeutic approaches.

Psychotherapeutic options

Psycho-education and reassurance: It is commonly used basic therapy; in which a clinician can provide a simple reassurance to the patient and educate them about the nature of illness.

Sleep hygiene and management of insomnia treatment: It also plays an important role and insomnia should be treated with anxiolytics in fragmented, disrupted sleep, and simple alterations to sleep behavior. Specific instructions should be given such as the avoidance of sleep on back such as in a supine or prone position. Sleep hygiene is not proper management of SP but it works as preventative measures [41], so sufferer follows sleep hygiene techniques. These are,

1. To maintain good night's sleep - most adult need 6-8 hours of good quality of sleep every day.
2. To maintain regular wake and sleep times, even on the weekends.
3. Should not take nap during day time . If he want to sleep, time period of naps to short around 10-15 minutes rest is recommended.
4. Before going to bed he should confirm the bedroom conditions are suitable to sleep for him such as quiet, comfortable temperature, pillow and mattress should be comfortable.
5. Do not take caffeine like substances before 10:00 a.m. It should be give up.
6. Smoking should be prohibited during the evening hours.
7. Alcohol should not to take, if habitual take light consumption.
8. Take little amount food and beverage at least three hours before going to bed.
9. Should do regular exercise, but it should finishes it at least four to six hours before bedtime. In some an exceptional situation like person having anxiety, in such condition light exercise before going to bed, it may help them to relax.
10. To take Sunlight exposure in the morning hours around minimum half an hour, and should be avoid bright lights in the evenings.
11. To be avoid computer and television screens in the hours before going to sleep. It said that bright lights suppress melatonin production.
12. To avoid homework or business work into the bedroom. To maintain a bedroom as a place for rest.
13. Do stress management techniques, it is necessary or appropriate.
14. To maintain a bedside diary to keep a record such as problems and plans. It should not be remain in the mind to preventing sleep. Should be avoid reading or watching news about troubling events just before going to bed.
15. For promoting good sleep take a lukewarm bath one to two hours before going to bed. Also take warm glass of milk .

The following additional measures may help,

1. To manage any type of psychosomatic disorder such as depression or anxiety disorder.
2. To minimize the intake of stimulants.
3. To do regular meditation or prayer.
4. To avoid to sleep on the back.

Meditation or muscle relaxation therapy

Baland Jalal, a neuroscientist, is an expert on sleep paralysis. He has analyzed this phenomenon in various countries around the world, and recently

designed one of the first ever treatments for sleep paralysis called meditation relaxation therapy or muscle relaxation therapy (MR Therapy). This intervention is also called "Focused inward-attention meditation combined with muscle relaxation intervention" [42].

There are four steps recommended in MR therapy and four steps to be followed one after the other, so that they almost overlap with each other. This type of therapy was designed in a particular fashion. It should give a complete and systematic step-by-step account. It is based on the aforementioned empirical and theoretical work. In other words, MR Therapy is exclusively a direct treatment; and, any techniques applied outside of SP such as psycho-education, imaginary rehearsal are not part of the intervention itself, but may still be useful as ways to augment the potential treatment effects.

MR therapy is based on four steps applied during SP: (1) cognitive reappraisal: in this therapy affected person carry on closing one's eyes, avoids panicking and re-appraising the meaning of the attack as benign. (2) Psychological and emotional distancing called emotion regulation: in this therapy the affected person reminds him or herself that comparing the event such as fear and the worry will worsen and possibly prolong it. (3) Inward focused-attention meditation: in this therapy individual should be focus on attention inward on an emotionally salient positive object. 4) Muscle relaxation: in this therapy affected person should be relax one's muscles, should avoid controlling breathing and avoid attempting to move. There are many case reports supporting this type of treatment, even though there is no randomized clinical trials yet to show its effectiveness of this therapy.

Psychopharmacological options

Drug therapy also plays an important role and effective sometime. Antidepressant agents such as tricyclic and selective serotonin reuptake inhibitors are commonly used; antidepressants suppress the REM sleep and to regulate sleep cycles. It is reported that tricyclic such as clomipramine 25-50 mg daily, imipramine 25-150 mg daily, have been reduce SP [43, 44] and selective serotonin reuptake inhibitors such as fluoxetine 40-80 mg daily [45] have been effectively utilized. Sodium oxybate (gamma-hydroxybutyric acid [GHB]), are well studied pharmacological agent however its results are not consistent in studies of narcoleptic patients. There is a possibility due to a lack of power to detect significant clinical effects. GHB 3-9 gram useful and it may lead to reduction in SP episodes [46].

Conclusion

Most of the time affected persons of SP doesn't need treatment. The key point is prevention and treating any underlying conditions such as narcolepsy. It may help if person are anxious, panic or unable to sleep well. Bad sleep habits should be manage with help of sleep hygiene technique. Mental health problem and other sleep disorders should be treat properly. There are several promising psychopharmacological and psychotherapeutic methods available to manage the SP. Delusion and hallucination are absent in most of the cases according to clinical definition, if it is present it is bizarre, surreal. These episodes are generally brief, lasting just a few moments. Pseudo-hallucinations may be present in a minority of cases. Sleep hygiene techniques have never been validated but it is preventive measures of insomnia in case of SP. On reality basis culturally shared interpretations are neither delusion nor hallucinations, it is misinterpreted in societies and it appears to be like delusion and hallucinations.

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